

an inner rotor;

FIG. 8 is an exploded perspective view illustrating the whole arrangement of the electric motor;

FIGS. 9A and 9B are schematic views respectively illustrating wiring connection of stator windings wound around salient poles shown in FIG. 6, and an equivalent circuit of the electric motor;

FIG. 10 is a graph showing a relationship between the number of poles of the stator windings and the number of poles of permanent magnets in relation steering smoothness a steering wheel; and

~~FIG. 11A and 11B are schematic diagrams --~~
[FIG. 11 is a schematic diagram] of a modified form of the stator windings of the electric motor according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following description is merely exemplary in nature and is in no way intended to limit the invention, its application or uses.

Referring initially to FIG. 1, an electric power steering apparatus 10 includes a steering system 23 coupled between a steering wheel 11 of a motor vehicle and front wheels 21, 21 of the motor vehicle, and a steering assist mechanism 24 designed to exert a steering assist torque to the steering system 23.

The steering system 23 includes a steering shaft 12 coupled to the steering wheel 11, first and second universal joints 13, 13, and a pinion shaft 32 which is coupled to the steering shaft 12 via the first and second universal joints 13, 13 and forms a rack-and-pinion mechanism 31. The rack-and-pinion steering mechanism 31 includes a rack shaft 34, which is connected at its